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Application Number:	10/814933
Filing Date:	Mar. 30, 2004
First Named Inventor:	Buchan
Group Art Unit:	1774
Examiner:	C.P. Johnson
Atty. Docket Num.	HSJ920040023US1

Pre-Appeal Brief Request for Review

The applicants have filed a Notice of Appeal and hereby request a review of the Examiner's decision under the pilot program established by the USPTO. (Official Gazette Notices - 12 July 2005).

The Commissioner is hereby authorized to charge payment of any fees required under 37 CFR 1.17 associated with this communication or credit any overpayment to the Deposit Account No. **50-2587**.

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Remarks

Inter alia, the Examiner rejected claims 1-3 and 12 under section 103(a) as being unpatentable over Lille, 6725526 in view of Davis, et al. 6821626. Applicants respectfully disagree and request that the rejection be withdrawn or reversed.

Applicants independent claim 1 is to a "structure for applying photoresist to a surface of a workpiece." This preamble language is given substance in the elements of the claim which include a "transferable coating of photoresist being transferable to the workpiece through physical contact." Applicants submit that none of the references cited are appropriate art because none of them teaches a structure for applying photoresist to a surface of a workpiece.

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More specifically, applicants' claim 1 includes "a transfer layer of polydimethylsiloxane with a transferable coating of photoresist . . . ; and a cushion layer consisting of rubber under the transfer layer . . ." It is respectfully submitted that the Examiner has erroneously equated applicants' claimed transfer layer with Lille's PDMS mold layer. The only similarity is that each is made of PDMS. The applicants' transfer layer has a transferable coating of photoresist, which is absent in Lille. The Examiner cited to Lille col. 4, lines 53-67 but there is nothing in this section or anywhere else in Lille's specification that describes any structure for applying photoresist to a surface of a workpiece and certainly not such a structure with "a transfer layer of polydimethylsiloxane with a transferable coating of photoresist on an outer surface of the transfer layer, the transferable coating of photoresist being transferable to the workpiece through physical contact . . ." as claimed. It is respectfully submitted that the Examiner has misinterpreted Lille's teaching for making a mold layer that involves applying a photoresist to the "transfer film" which refers to a mold of a physical structure. (See Lille's claim 1 for example.) Thus, Lille's transfer film is used to duplicate a physical topography by using it as a mold. In the section cited by the Examiner Lille refers to a "replica (transfer film 14) of the master silicon surface" as shown in his Fig. 3. The cited passage in Lille notes that the "master may be formed by depositing, patterning and exposing a photoresist layer on the master wafer," but there is no teaching in Lille that the transfer layer 14 ever has a transferable layer of photoresist on it. Note that photoresist is absent in Lille's Fig. 3.

In the summary Lille mentions an embodiment in which a transfer film is formed across the substrate, and a patterned photoresist layer is formed on top of the transfer film. The method includes transferring the **image of patterned photoresist layer** through the transfer film, and removing the patterned photoresist layer. Transferring an image of a patterned photoresist is not the same as transferring the photoresist itself. In the specification Lille describes this alternative embodiment with reference to Fig. 6.

A photoresist layer is patterned on top of the MSSQ and the pattern is transferred through the MSSQ using a fluorine-containing plasma. The photoresist layer is

removed, leaving a structure on the wafer having a cross-section that is similar to that shown in FIG. 6. Col. 6, lines 52-57.

It is clear that Lille's photoresist layer on the MSSQ is not transferable to a workpiece. Lille teaches developing the photoresist while it is on the MSSQ and then removing it. Lille's device cannot be used in the way that applicants' device can be used, i.e. for applying photoresist to a surface of a workpiece.

The Examiner noted that Lille's teaching does not include applicants' claimed cushion layer of rubber. Dependent claim 3 adds that the cushion layer is silicone rubber. The cushion layer again makes it clear that applicants' article is a "structure for applying photoresist to a surface of a workpiece" as the preamble states. Lille's article is simply a wafer that is being processed using photoresist applied by undescribed methods.

For a cushion layer, the Examiner cites Davis, et al. 6821626 "Fluorocarbon random copolymer for use in toner release layer." Davis is clearly non-analogous art in relation to Lille which deals with a "Method of forming microsuspension assemblies for direct access storage devices." Therefore, the applicants submit that there is no motivation for one of ordinary skill in the art to look to either Lille or Davis for a solution to the problem of photoresist transfer to a workpiece that is addressed by applicants' invention. Davis' cushion layer is not used as part of structure for transferring a photoresist to a workpiece and is, therefore, inapplicable. But even if one attempts to combine Lille or Davis, the applicants' structure cannot be obtained.

The office action also rejects claims 11 and 14-16 under section 103(a) as being unpatentable over Lille, 6,725,526 in view of Davis, et al. 6,821,626 further in view of Drake 6,200,882. Applicants respectfully disagree. Drake teaches a "Method for processing a plurality of micro-machined mirror assemblies" and is again non-analogous art in relation to Lille, Davis and the applicants' claims because Drake does not teach a structure for transferring a photoresist to a workpiece. Drake is describing a method for processing a plurality of mirror assemblies formed from a silicon wafer.

Given all of the references, one of ordinary skill in the art in the art of applying photoresist to workpieces would not be led to assemble applicants' claimed structure of a transfer layer of polydimethylsiloxane with a transferable coating of photoresist and a cushion layer consisting of rubber under the transfer layer.

Claim 15 is directed to an embodiment that includes a cover-tape attached to the cushion layer. The cover-tape is larger in area than the cushion layer and extending beyond at least first and second edges of the cushion layer. Claim 16 is directed to an embodiment that includes a stiffener layer attached to the cushion layer, and a cover-tape attached to the stiffener layer. In particular, applicants would point to the cover-tape in these claims as clearly distinguishing applicants claimed article from the wafer in Lille and the other references.

Applicants' independent claim 17 is for a "structure for applying photoresist to a surface of a workpiece" that includes a cover-tape, at least two photoresist transfer pads attached to the cover-tape, and a cushion layer. The office action also rejects claims 17-23 under section 103(a) as being unpatentable over Otsuka, et al. 2003/0197978 further in view of Bietsch 2005/0191582. Because Otsuka's teaching is not related to applicants' claimed structure is respectfully submitted that the Examiner has equated non-analogous elements in Otsuka to applicants' claimed elements. First, the Examiner equated the cover-tape to a carbon film on a wafer. It is respectfully submitted that the term "cover-tape" as used in applicants' specification and claims and as understood by one of ordinary skill in the art cannot be read on a carbon film on a silicon wafer.

The Examiner noted that Otsuka does not teach the polymer layer with a transferable coating of photoresist nor a cushion layer. The Examiner then cited Bietsch for PDMS or silicone rubber in resist compositions. Bietsch describes a mechanically releasable slider process that utilizes silicone rubber or PDMS to take the function of a planarization material for individual sliders or slider rows. Bietsch's invention uses PDMS as planarization and bonding material of individual sliders or slider rows. (see paragraph 0023.) Applicants respectfully

disagree that Bietsch adds the elements that the Examiner admitted are missing from Otsuka. Neither Otsuka nor Bietsch teach the claimed cover-tape with at least two photoresist transfer pads attached to the cover-tape.

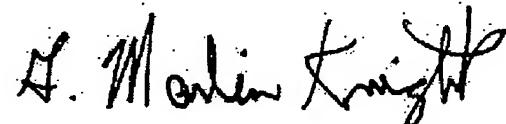
In dependent claim 22 the cover-tape and photoresist pads are formed into a roll. Dependent claim 23 recites that the photoresist pads are sequentially disposed on the cover-tape so that unrolling the roll sequentially exposes the photoresist pads. Dependent claims 22 and 23 emphasize that the cover-tape cannot be equated to a carbon film on a wafer. Among many differences, the carbon film on wafer cannot be rolled up as claimed.

None of the cited references have any comparable teaching to applicants' invention that includes a cover-tape with a plurality of photoresist transfer pads as claimed.

Applicants respectfully submit that the references singly and when combined fail to teach claimed elements of applicants' claims.

Applicants, therefore, believe that all of the claims in application are allowable.

Respectfully submitted,



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